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TITLE: Method and apparatus for controlling phase-change
ink temperature
during a transfer printing process

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The process window is determined experimentally by running test prints under sets of controlled transfer conditions. The test prints were made using some fixed control parameters. For instance, a diamond-turned unsealed anodized aluminum drum was used, which is the preferred drum 14. Roller 23 was a typewriter platen having an elastomeric surface with a Shore D hardness and/or durometer of 40 to 45. Each end of roller 23 was biased toward drum 14 with a 350-pound force resulting in an average nip pressure of about 463 psi. Final receiving substrate 21 was Hammermill Laser Print paper. Xerox type 4024 paper may also be used but is not preferred for test prints. The liquid forming intermediate transfer surface 12 was 1000 cSt silicone oil. Final receiving medium 21 was moved through nip 22 at a velocity of about 13 cm/second. The importance of velocity, which is determined by drum 14 rotation speed, is not fully understood. However, the ink temperature in nip 22 substantially reaches equilibrium in about 2 to about 6 milliseconds.